

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

CLAIMS

Claim 1 (original): A display apparatus comprising:
a light source unit for generating excitation light having a predetermined wavelength;
an optical element for modulating the excitation light generated by the light source unit for each of pixels in a two-dimensional plane; and
a fluorescent screen for receiving the excitation light modulated by the optical element at a first surface and emitting visible light from a second surface opposite to the first surface, said fluorescent screen including a layer of phosphor having an absorption coefficient not smaller than $1 \times 10^2 \text{ cm}^{-1}$ for the excitation light.

Claim 2 (original): A display apparatus comprising:
a light source unit for generating excitation light having a predetermined wavelength;
an optical element for modulating the excitation light generated by the light source unit for each of pixels in a two-dimensional plane; and
a fluorescent screen for receiving the excitation light modulated by the optical element at a first surface and emitting visible light from a second surface opposite to the first surface, said fluorescent screen including a layer of phosphor in which a thickness of said layer of phosphor that gives a maximum brightness caused by the excitation light is not larger than $120 \mu\text{m}$.

Claim 3 (original): A display apparatus comprising:
a light source unit for generating excitation light having a predetermined wavelength;
an optical element for modulating the excitation light generated by the light source unit for each of pixels in a two-dimensional plane; and
a fluorescent screen for receiving the excitation light modulated by the optical element at a first surface and emitting visible light from a second surface opposite to the first surface, said

fluorescent screen including a layer of phosphor in which a product of an absorption coefficient for the excitation light and a thickness of said layer of phosphor is within a range from 1 to 8.

Claim 4 (original): A display apparatus comprising:
a light source unit for generating excitation light having a predetermined wavelength;
an optical element for modulating the excitation light generated by the light source unit for each of pixels in a 2D two-dimensional plane;
a projection lens to project the excitation light modulated by the optical element; and
a fluorescent screen for receiving the excitation light projected by the projection lens at a first surface and emitting visible light from a second surface opposite to the first surface, said fluorescent screen including a layer of phosphor having an absorption coefficient not smaller than $1 \times 10^2 \text{ cm}^{-1}$ for the excitation light.

Claim 5 (original): A display apparatus comprising:
a light source unit for generating excitation light having a predetermined wavelength;
an optical element for modulating the excitation light generated by the light source unit for each of pixels in a two-dimensional plane;
a projection lens to project the excitation light modulated by the optical element; and
a fluorescent screen for receiving the excitation light projected by the projection lens at a first surface and emitting visible light from a second surface opposite to the first surface, said fluorescent screen including a layer of phosphor in which a thickness of said layer of phosphor that gives a maximum brightness caused by the excitation light is not larger than $120 \mu\text{m}$.

Claim 6 (original): A display apparatus comprising:
a light source unit for generating excitation light having a predetermined wavelength;
an optical element for modulating the excitation light generated by the light source unit for each of pixels in a two-dimensional plane;
a projection lens to project the excitation light modulated by the optical element; and
a fluorescent screen for receiving the excitation light projected by the projection lens at a first surface and emitting visible light from a second surface opposite to the first surface, said fluorescent screen including a layer of phosphor in which a product of an absorption coefficient for the excitation light and a thickness of said layer of phosphor is within a range from 1 to 8.

Claim 7 (original): A display apparatus according to claim 1, wherein a thickness of said layer of phosphor is not larger than 120 μ m.

Claim 8 (original): A display apparatus according to claim 3, wherein the thickness of said layer of phosphor is not larger than 120 μ m.

Claim 9 (original): A display apparatus according to claim 4, wherein a thickness of said layer of phosphor is not larger than 120 μ m.

Claim 10 (original): A display apparatus according to claim 6, wherein the thickness of said layer of phosphor is not larger than 120 μ m.

Claim 11 (original): A display apparatus according to claim 2, wherein the thickness of said layer of phosphor that gives a maximum brightness caused by the excitation light is not larger than 80 μ m.

Claim 12 (original): A display apparatus according to claim 5, wherein the thickness of said layer of phosphor that gives a maximum brightness caused by the excitation light is not larger than 80 μ m.

Claim 13 (original): A display apparatus according to claim 3, wherein the product of the absorption coefficient and the thickness of said layer of phosphor is within a range from 2 to 4.

Claim 14 (original): A display apparatus according to claim 6, wherein the product of the absorption coefficient and the thickness of said layer of phosphor is within a range from 2 to 4.

Claim 15 (original): A display apparatus according to claim 1, wherein said phosphor includes at least one of ZnO:Zn; (Sr, Ca, Ba)₅(PO₄)₃Cl:Eu; ZnS:Ag, Al; ZnS:Au, Ag, Al; ZnS:Cu, Au, Al; (Zn, Cd)S:Ag; (Zn, Cd) S:Cu; Y₂O₃:Bi, Eu; LiEuW₂O₈; Ca₈Mg (SiO₄)₄Cl₂:Eu, Mn; Ba₂ZnS₃:Mn; Y₂O₂S : Eu; BaMg₂Al₁₆O₂₇:Eu; BaMg₂Al₁₆O₂₇:Eu, Mn; BaMgAl₁₀O₁₇:Eu; BaMgAl₁₀O₁₇:Eu, Mn; Sr₅, (PO₄)₃Cl:Eu; (Sr, Ba) SiO₄:Eu; SrGa₂S₄:Eu; K₃Eu_{2.5} (WO₄)_{6.75}; ZnS:Cu, Al ; and 3.5MgO. 0.5MgF₂ GeO₂:Mn.

Claim 16 (original): A display apparatus according to claim 6, wherein the phosphor includes at least one of ZnO:Zn; (Sr, Ca, Ba)₅(PO₄)₃Cl:Eu; ZnS:Ag, Al; ZnS:Au, Ag, Al; ZnS:Cu, Au, Al; (Zn, Cd)S:Ag; (Zn, Cd) S:Cu; Y₂O₃:Bi, Eu; LiEuW₂O₈; Ca₈Mg (SiO₄)₄Cl₂:Eu, Mn; Ba₂ZnS₃:Mn; Y₂O₂S : Eu; BaMg₂Al₁₆O₂₇:Eu; BaMg₂Al₁₆O₂₇:Eu, Mn; BaMgAl₁₀O₁₇:Eu;

BaMgAl₁₀O₁₇:Eu, Mn; Sr₅(PO₄)₃Cl:Eu; (Sr, Ba) SiO₄:Eu; SrGa₂S₄:Eu; K₅Eu_{2.5}(WO₄)_{6.75}; ZnS:Cu, Al; and 3.5MgO. 0.5MgF₂ GeO₂:Mn.

Claim 17 (original): A display apparatus according to claim 1, wherein the fluorescent screen further includes second phosphor which is different from said phosphor and generates visible light upon receiving luminescent light from said phosphor.

Claim 18 (original): A display apparatus according to claim 4, wherein the fluorescent screen further includes second phosphor which is different from said phosphor and generates visible light upon receiving luminescent light from said phosphor.

Claim 19 (original): A display apparatus according to claim 17, wherein said second phosphor includes at least one of Y₃Al₅O₁₂:Ce and Y₃(Al, Ga)₅O₁₂:Ce.

Claim 20 (original): A display apparatus according to claim 18, wherein said second phosphor includes at least one of Y₃Al₅O₁₂:Ce and Y₃(Al, Ga)₅O₁₂:Ce.

Claim 21 (new): A display apparatus according to claim 2, wherein the thickness of said layer of phosphor that gives the maximum brightness caused by the excitation light is not less than 13μm.

Claim 22 (new): A display apparatus according to claim 5, wherein the thickness of said layer of phosphor that gives the maximum brightness caused by the excitation light is not less than 13μm.

Claim 23 (new): A display apparatus according to claim 7, wherein the thickness of said layer of phosphor is not less than 7μm.

Claim 24 (new): A display apparatus according to claim 8, wherein the thickness of said layer of phosphor is not less than 7μm.

Claim 25 (new): A display apparatus according to claim 9, wherein the thickness of said layer of phosphor is not less than 7μm.

Claim 26 (new): A display apparatus according to claim 10, wherein the thickness of said layer of phosphor is not less than 7μm.